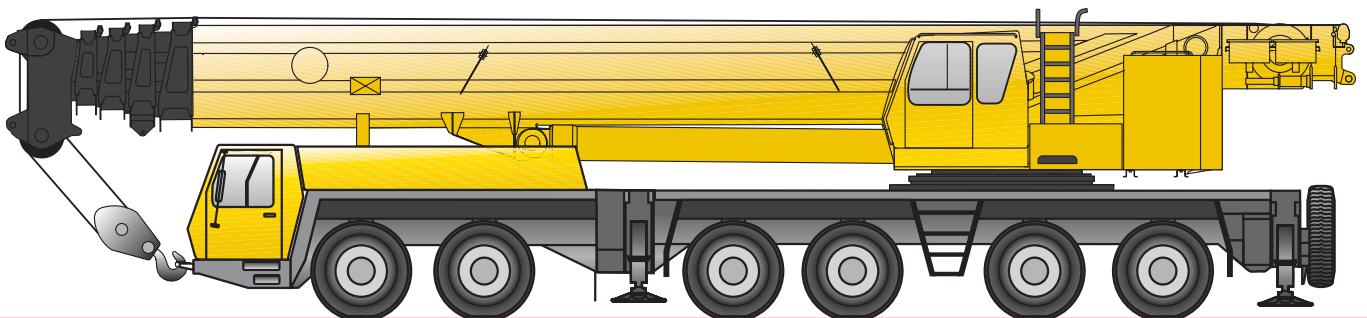


GROVE®

GMK 6300 ■



**Lattice extension
operating manual**



Serial number

**3 112 447 en
2007.12.06**

Manitowoc®
Crane Group

A **Manitowoc** Company

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1.2

Basic safety instructions

1.2.1

Warnings and symbols

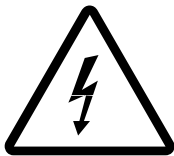
The following designations and symbols are used in the operating manual to highlight particularly important information:



This symbol indicates hazards related to the described operation that may cause personal injury. The type of danger (e.g. danger to life, risk of injury or risk of crushing) usually precedes the warning.




This symbol indicates dangers which put objects at risk, e.g. damage to the truck crane, the load or the environment.



This symbol warns you about situations where there is a danger of electrocution.



This symbol indicates that you are working with substances which pose a risk to the environment. Take particular care. Further information on handling substances that pose a risk to the environment;  *Maintenance manual, Chapter Safety and environmental protection.*

The vertical line to the left of the warning text indicates that: This text, regardless of its length, relates to the warning symbol.



The hand with the pointing finger indicates passages that contain additional instructions and tips regarding truck crane operation.



This symbol indicates that the topic is continued on the next page. Turn to the next page.

2 Transport dimensions, weights and allocation of the lattice extension sections

2.1	Transport dimensions and weights in metric units	2 -	1
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3

Telescopic swing-away lattice extension

3.1

Supplement to the operation of the GMK 6300 with the telescopic swing-away lattice extension folded at the side

When the telescopic swing-away lattice extension is folded at the side, the prerequisites change

- for telescoping when working with the main boom and
- for driving the truck crane.

Observe the information in the following sections concerning this.

3.1.1

Changed prerequisite for telescoping



Risk of damage to the hoses of the hydraulic connection.

Ensure the hydraulic connection of the lattice extension is separated before telescoping the main boom.

This prevents the hydraulic connections being torn during telescoping;

▣▣▣▣ ➔ *Establishing/disconnecting the hydraulic connections*, p. 3 - 46.

If the telescopic swing-away lattice extension is mounted sideways onto the GMK 6300 main boom, it can be put into two positions:

- Into the position *driving*,
- Into the position *working with the main boom*.

The telescopic swing-away lattice extension's position is electrically monitored. The telescoping of the main boom will only be released if both of the following lights are **not** on:



- The indicator lamp *Lattice extension in driving position* must **not** light up;

▣▣▣▣ ➔ *Additional operating and display elements in the crane cab*, p. 3 - 7.



- The warning lamp *Telescoping main boom closed* must **not** light up;

▣▣▣▣ ➔ *Additional operating and display elements in the crane cab*, p. 3 - 7.



Both the lamps are installed together with other display and operating elements. Further information is available in the following chapters.

3.5

Components and identification

Components

When delivered, the telescopic swing-away lattice extension has the following components (see diagram on next page):

- The foot section
- The head section (inclinable part)
- The adapter unit (for mounting on the main boom head)
- A levering tool to connect the hydraulic quick couplings

Identification

The telescopic swing-away lattice extension is designed for the truck crane for which it was delivered. The telescopic swing-away lattice extension parts belonging to the truck crane have the same serial number as the truck crane. All individual components are identified by serial numbers.

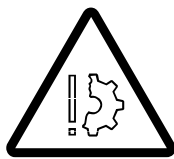


Operate the truck crane only with the parts of the telescopic swing-away lattice extension which have the same serial number as the crane. The RCL is set only for this telescopic swing-away lattice extension. This prevents malfunctions and damage.



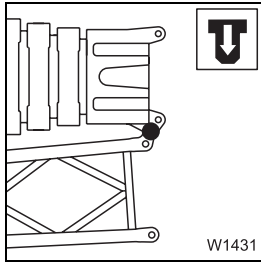
For technical reasons, a truck crane may only be set with one telescopic swing-away lattice extension.

If you wish to use the telescopic swing-away lattice extension on several GROVE truck cranes, the telescopic swing-away lattice extension sections must be adjusted for the corresponding cranes and labelled with all of the respective serial numbers.

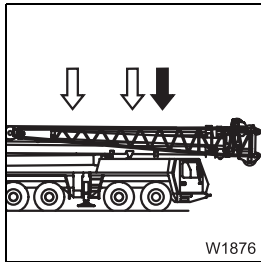


The adjustment of the telescopic swing-away lattice extension may only be carried out by **CraneCARE**.

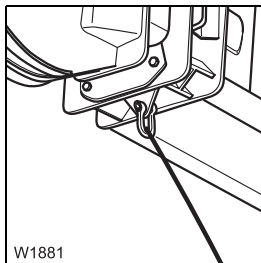




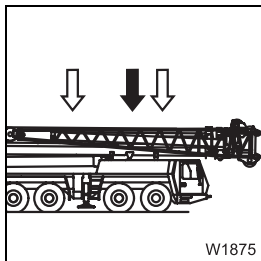
7. Establish a swivelling connection between foot section and adapter unit on the main boom; p. 3 - 41.



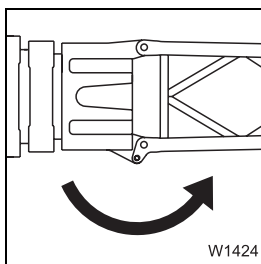
8. Loosen connection between lattice extension and main boom in the front area; p. 3 - 40.



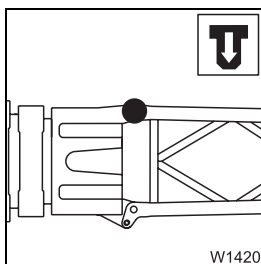
9. Attaching guide rope on lattice extension head section.



10. Press the lattice extension with the swivel ram from the run-up rail and release the swivel ram; *Extending/retracting the tilt cylinder*, p. 3 - 38.



11. Swing the lattice extension in front of the main boom head;
 Swivelling the lattice extension when rigging, p. 3 - 43.



12. Locking the lattice extension on the left side with the adapter unit;
 p. 3 - 44.



3.9

Description of the rigging work

3.9.1

Preparing the truck crane for rigging

Prerequisites for rigging

The following requirements must be met before the rigging of the lattice extension is started:

- The lattice extension must be mounted at the side on the main boom and must be in transport condition.
- The counterweight combination required according to the *Lifting capacity table* for the planned operation with the lattice extension is rigged.
- The truck crane is supported by the outrigger span required acc. to the *Lifting capacity table* for the planned operation with the lattice extension and is level.
- The telescoping cylinder is locked in telescopic section IV and is retracted as far as possible just before the start of rigging so that all telescoping parts are fully retracted.
- The hook block is unreeved until the hoist rope extends to the ground on the left side of the main boom.
- The hoist rope is unreeled from the main boom head approx. 10 m (33 ft) wide towards the front (until the hoist rope stop for angling).



Risk of damage to the hoist rope.

Always keep the hoist rope on the left side of the main boom going down to the ground. In this way, you will prevent that the hoist rope from damage by getting stuck on the retaining part while being tightened.

Prerequisites for unrigging

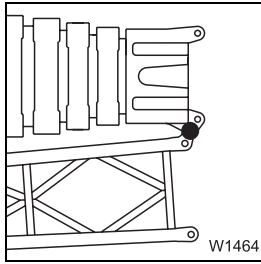
Before you lower a lattice extension or the boom extension into a horizontal position, the following requirements must be met:

- No other load is raised apart from the hook block.
- The counterweight version required according to the *Lifting capacity table* for the planned operation with the lattice extension is rigged.
- The truck crane is supported with the outrigger span prescribed for operation with the rigged lattice extension according to the *Lifting capacity table*.
- The main boom is fully retracted (0/0/0/0).
- The RCL code for operation with the rigged lattice extension must have been entered.



3.9.5

Pin connection to swing the lattice extension



The pin connection for swinging the lattice extension is made and disconnected between the bearing points of the foot section and of the adapter unit on the right side of the main boom.

The connection must be **made** so that you can swivel the lattice extension in front of the main boom head during rigging or onto the basic section during unrigging.

The connection must be **disconnected** so that you can swivel the lattice extension into the *working with the main boom* position.




Risk of accidents due to falling parts.

Always secure the pins both in the bearing points and in the holders using retaining pins.

This prevents unsecured pins from becoming loose, falling out and causing injuries.

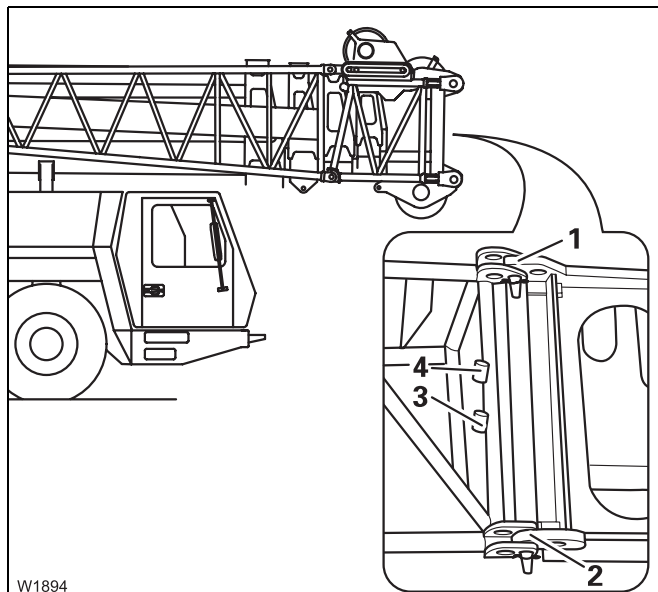


If the bearing points for the slewing connection do not align, you can align the lattice extension by turning using the mobile switch unit;  p. 3 - 63.

Creating a slewing connection

The connections on the bearing points are made with pins.

The pins can be found in holders on the lattice extension and are secured there with retaining pins.




- Release the retaining pins and remove the two pins from the holders (3) and (4).
- Insert one pin into each of the bearing points (1) and (2).
- Secure both pins with the retaining pins.




Setting the angle

This section describes the procedure for setting the angle.

The required pin connections for the different angles are illustrated in the following section;  p. 3 - 52.


When rigging

- Lift the lattice extension with the hoist rope until the inserted pins are relieved.
- Remove the retaining pins and knock out the securing pins;  p. 3 - 52.




Risk of damage when putting down the head.

When inclining the lattice extension, never lower the main boom so much that the head of the lattice extension touches the ground. If the lattice extension is put on the ground or moved on the ground, the lattice extension can be damaged.

- Incline the lattice extension with the hoist into the required angle. Be sure that the head section does not touch the ground when doing this.
- Make the necessary pin connections for this angle and secure **all** pins with retaining pins;  p. 3 - 52.

When unrigging

- Lift the lattice extension with the hoist rope until the inserted pins are relieved.
- Remove the locking pins at a 5° angle;  p. 3 - 52.
- Pull the lattice extension to a 0° angle with the hoist rope.



Risk of damaging the hoist rope when lowering.

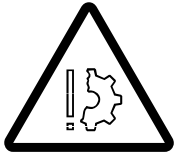
If you have pulled the lattice extension to the stop into the 0° position with the hoist cable, you always have to release some of the hoist rope before you lower the main boom. In this position, the lattice extension can no longer compensate for the radius modification by inclining, the hoist rope is loaded when lowered and may tear.

- Release a little of the hoist rope and do not lower the main boom so much that the head section touches the ground.
- Make the necessary pin connections for the 0° angle and secure all pins with retaining pins.



3.10.1

Raising and setting down the main boom with rigged lattice extension



Risk of overloading the main boom.

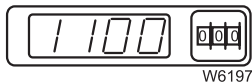
When raising and setting down the main boom with rigged lattice extension, operation in high-speed mode is not permitted.

This prevents the main boom becoming subject to increased vibrations and becoming overloaded.

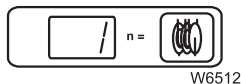


To raise and set down the main boom with a rigged lattice extension the main boom must be fully retracted (RCL display 0/0/0/0) and the RCL then switches automatically to the rigging program.

For raising and setting down, the following requirements must be met:



- The RCL code for the actual rigging mode is set on the RCL with 11 m or 19 m telescopic swing-away lattice extension selected.



- The current reeving of the hoist rope on the lattice extension is entered.
- Apart from the hook block there is no load on the lattice extension.

Raising

- Derrick in the main boom to raise it.

Setting down

- Derrick out to set down the main boom while making sure that the head sheave is not pushed over the ground with the 19 m lattice extension.



Risk of damage when putting down the 19 m lattice extension.

When setting down, the head sheave of the lattice extension must not touch the ground. Stop lowering the boom before that, or attach the lattice extension to the hoist rope or an auxiliary crane to adjust the angle.

This prevents the lattice extension being pushed forward to the ground and the extended section from being damaged.

11 m telescopic swing-away lattice extension

The following table is for a rigged 11 m telescopic swing-away lattice extension. There is an extra table for the 19 m telescopic lattice extension in this section.



All the axle loads specified in the following tables refer to a driving mode with the basic unit and a **35 t hook tackle** (weight: 620 kg (1365 lbs)) reeved on the lattice extension. Larger hook blocks must be unreeved.

Counter-weight in t (lbs)	Telescope status Tele. I/II/III/IV	Angle of main boom in °	Angle of lattice extension in °	Main boom position ¹⁾	Axle load ²⁾ in t		Axle load ²⁾ x 1000 lbs	
					front	rear	front	rear
8.0 (17600)	0 / 0 / 0 / 0	10	5	front	13.5	14.5	29.8	32.0
	0 / 0 / 0 / 0	82	5	rear	7.5	17.5	16.5	38.6
22.0 (48500)	0.5 / 0 / 0 / 0	10	5	front	17.0	16.5	37.4	36.4
	0 / 0 / 0 / 0	82	5	rear	11.5	19.0	25.3	41.9
36.0 (79400)	1.0 / 0 / 0 / 0	10	5	front	20.5	18.0	45.2	39.7
	0 / 0 / 0 / 0	82	5	rear	15.0	21.0	33.1	46.3
50.0 (110200)	1.0 / 0.5 / 0 / 0	10	5	front	21.0	21.5	46.3	47.4
	0 / 0 / 0 / 0	82	5	rear	18.5	22.5	40.8	49.6
80.0 (176400)	1.0 / 1.0 / 1.0 / 0	10	5	front	23.0	28.0	50.7	61.7
	0 / 0 / 0 / 0	82	5	rear	26.0	26.5	57.3	58.4
100.0 (220500)	Not permissible						Not permissible	

- 1) Boom position to the rear = 0° position, boom over rear edge of truck crane
 Boom position to the front = 180° position, boom over driver's cab
- 2) Axle load front: On the first and second axle line
 Axle load rear: On the third, fourth, fifth and sixth axle lines



If the front outrigger cylinders cannot be extended after driving the truck crane; *Extending the outriggers*, p. 3 - 75.



3.15 Lubrication chart



The lubricants listed in the following table are to be used in the maintenance of the telescopic swing-away lattice extension. If the table of lubricants in the *Maintenance manual* of the GMK 6300 contains other lubricants under the same designation, use only those lubricants in this table for the telescopic swing-away lattice extension.

Designation	Lubricating point	Type of lubrication	Designation according to DIN 51502	Specification, Classification	Lubricant type, Viscosity range
J	Lubricating point (grease)	Grease gun and by hand	K - L2K	DIN 51825	
K	Roller bearing	Grease applied during repairs	KP - L2K	DIN 51825	
L2	Slideways	by hand with a brush or spatula	GROVE part no. 01 373 458 ¹⁾		

¹⁾ Deliverable by *CraneCARE*

3.16.6

Lubricating the telescope slide faces

M 6

The main boom with the telescopic swing-away lattice extension mounted on the front must be lowered to the horizontal for lubricating the telescope slide faces. The telescopic section must be extended.



Danger of falling when walking on the telescopic swing-away lattice extension and the main boom.

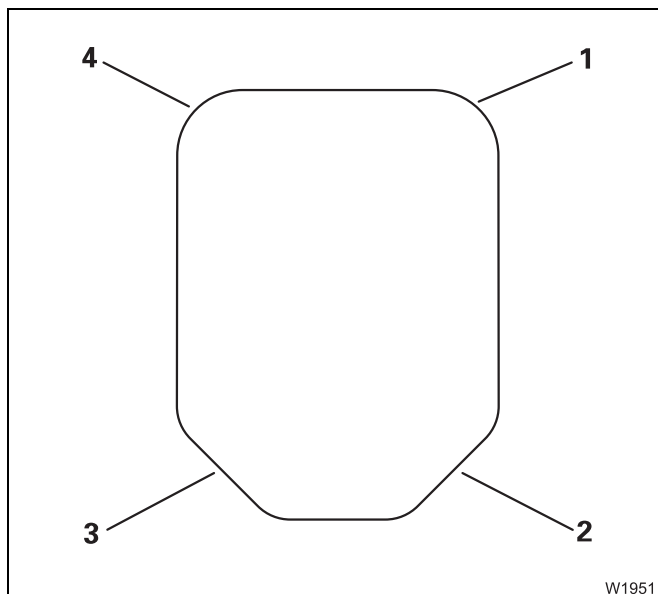
Do not walk on the main boom or the telescopic swing-away lattice extension while lubricating. Risk of slipping due to grease residue – you may fall. Use a ladder to lubricate.



Danger of accidents due to unauthorised use of the truck crane.

During lubrication the telescopic swing-away lattice extension must not be raised. You may fall from the ladder. Hang a warning sign in the crane cab and lock the door.

- To lubricate the slide faces use only lubricating grease in accordance with the *Maintenance plan*; p. 3 - 79.
- Extend the telescopic swing-away lattice extension fully.



There are four slide faces on the edges of the telescopic section.

- Use a spatula to apply a thin layer of grease to the whole of the slide faces.
- Fully retract the telescopic swing-away lattice extension.

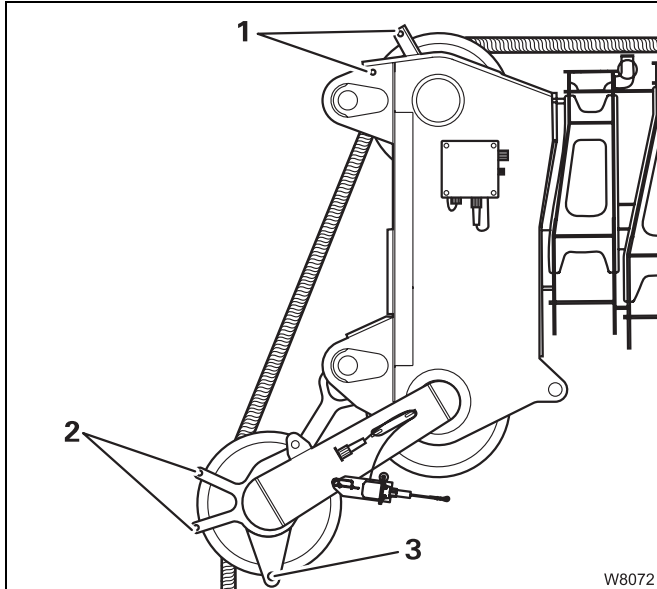


Extending and retracting again improves the effect of lubrication.

4.3

Reeving the hoist rope


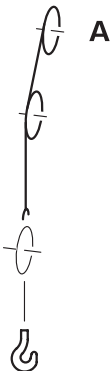
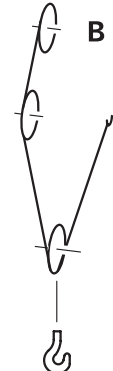


Positioning the hoist rope



- Remove the rope holding rods on the main boom head (1) and the auxiliary single-sheave boom top (2).
- When reeving, guide the hoist rope over the left head sheave of the main boom.
- Insert the rope holding rods into the appropriate bores and secure them with the corresponding retaining pins.
- Secure the rope end clamp to the hook block or the attachment plate (3) on the auxiliary single-sheave boom top, depending on the reeving method used.

Possible reeving methods on the auxiliary single-sheave boom top

The hoist rope can be reeved a maximum of 2 times when operating with the auxiliary single-sheave boom top.

 <p>1sheave hook block Max. load bearing capacity of the hook block 35 t (77 160 lbs)</p> <p>Max. load bearing capacity with the GMK 6300:</p> <p>A 1-fall reeving 11 t (24 250 lbs)</p> <p>B 2-fall reeving 22 t (48 500 lbs)</p>	 <p>A</p>  <p>B</p>
 <p>Hook tackle Max. load bearing capacity of the hook tackle 12 t (26 455 lbs)</p> <p>Max. load bearing capacity with the GMK 6300:</p> <p>A 1-fall reeving 11 t (24 250 lbs)</p>	 <p>A</p>

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5

Boom extension


5.1

Components and identification

Components

When delivered, the boom extension includes the following components (see diagram on next page):

- A foot section
- Four intermediate sections
- An angle piece
- A head

These components can be assembled in five different length combinations. Which parts must then be installed at which position;  *Possible combinations*, p. 5 - 5.

Identification

The boom extension is designed for the truck crane with which it was delivered. The parts of the boom extension belonging to the truck crane have the same serial number as the truck crane. All components are identified by a serial number.



Operate the truck crane only with those parts of the boom extension which have the same serial number as the truck crane. The RCL is only set for this boom extension. This prevents malfunctions and damage.



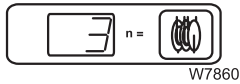
For technical reasons, the truck crane may be set only with one boom extension.

If you wish to use the boom extension on more than one GROVE truck cranes, the parts of the boom extension must be set for these cranes and labeled with all of the respective serial numbers.



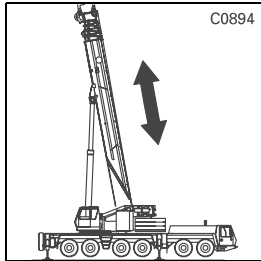
The adjustment of the boom extension may only be carried out by **CraneCARE**.



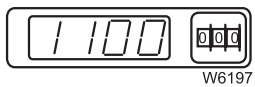


- 12.** Enter the current reeving in the RCL;
 ■■■► *Operating Instructions GMK 6300 – Operating the RCL.*

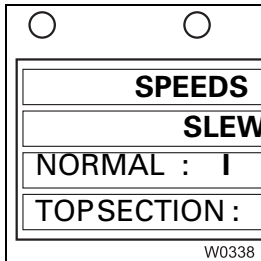
- 13.** Raising the main boom with the boom extension;
 ■■■► *Crane movements, p. 5 - 44.*



- 14.** If necessary, telescope out the main boom to a position permissible according to the *Lifting capacity table* and lock the telescopic sections;
 ■■■► *Telescoping with rigged boom extension, p. 5 - 46.*



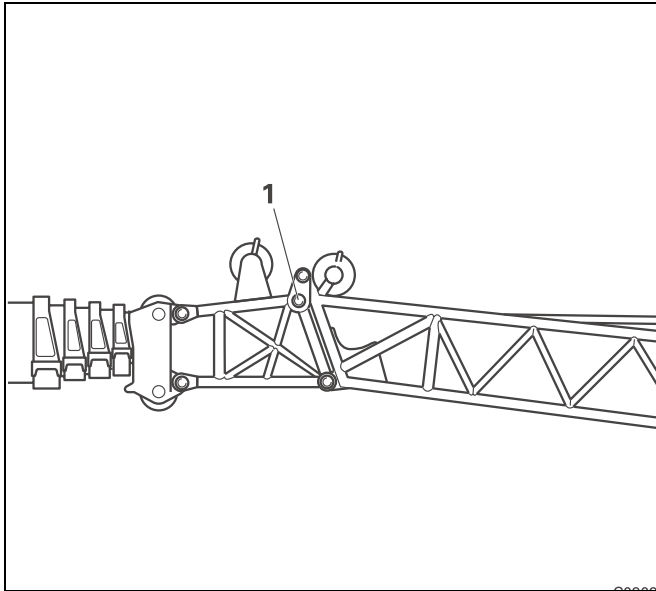
- 15.** Select the actual rigging mode on the RCL with the rigged boom extension or enter the respective RCL code according to the *Lifting capacity table*; ■■■► *Operating Instructions GMK 6300 – Rated Capacity Limiter – RCL.*



- 16.** The maximum permitted slewing speed for the current rigging mode is set; ■■■► *Operating Instructions GMK 6300 – Maximum permissible slewing speeds.*

5.5.5 Transport pins

The foot section is also used as the foot section of the luffing jib. For the luffing jib, it has the functionality of an angle piece, which is not used for the boom extension.



The transport pins (1) on both sides of the foot section prevent the luffing section folding down during transport, during rigging and during working with the boom extension.



Risk of accidents from folding out foot section.

For operation with the boom extension, the transport pins in the foot section's angle section must always be inserted. Before raising the boom extension check if both parts of the foot section are connected to the transport pins. This prevents the upper section folding down during the raising process.

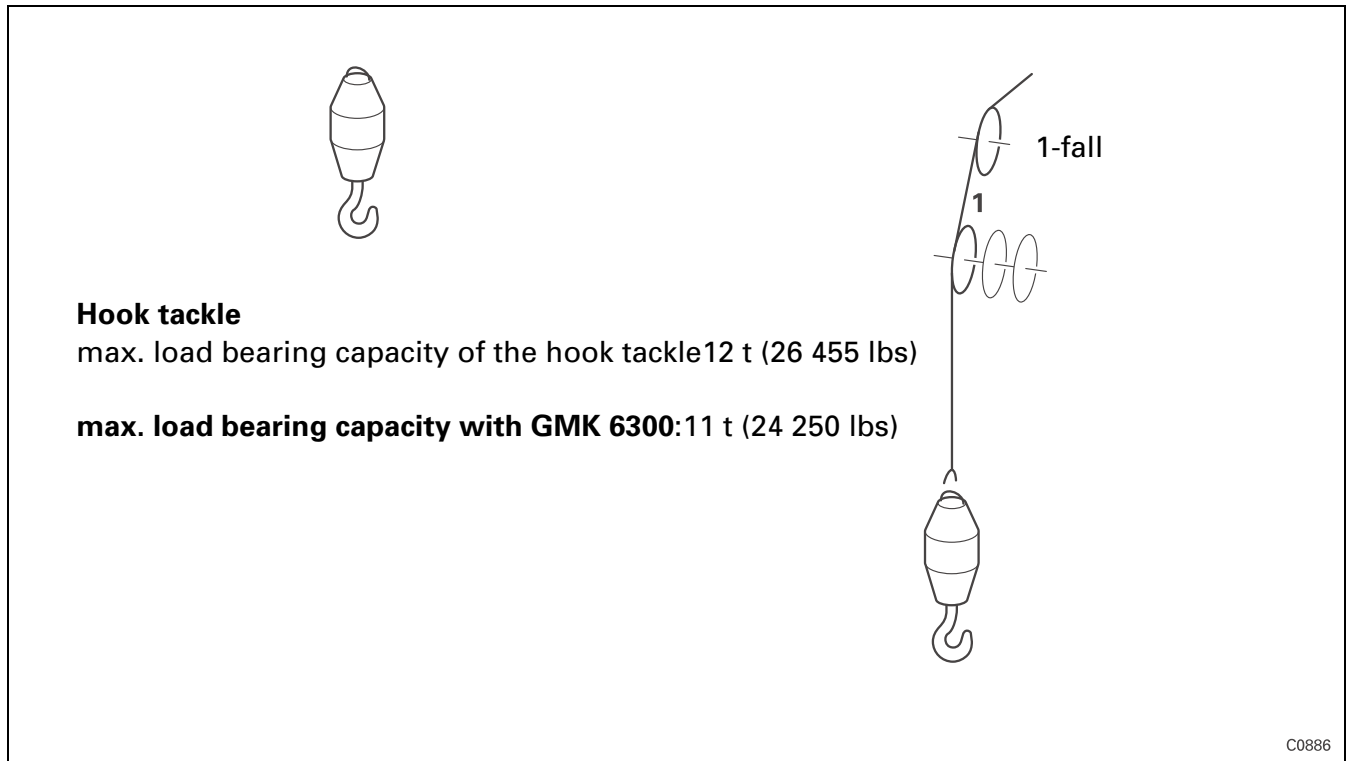
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Risk of rope slack if single-line reeving is used.

If you work with single-line reeving^{*)} for system lengths more than 80 m (262 ft), you must always reeve the 35 t hook block or heavier hook blocks. When the lighter 12 t hook tackle is used with these system lengths, the weight of the rear hoist rope will not be compensated and the rope will go slack.

^{*)} System length = main boom length + length of lattice extension

Driving



Risk of damage to the tyres.

Check the pressure in the tyres before moving the rigged truck crane. The truck crane may only be moved if the tyre pressures are at the prescribed levels; *Operating Instructions GMK 6300 – Checking the tyres*. Do not reduce the tyre pressure.



Risk of damage to the steering linkage.

Steer the truck crane only when the vehicle is rolling. The steering linkage can be damaged if the steering is operated while the vehicle is stationary.



Check the wind speed before moving the rigged truck crane. The same maximum permissible wind speeds apply for driving the truck crane as when working with the crane; *Operating instructions GMK 6300 – Influence of wind on crane operation*.

- Switch the transfer case to off-road gear to move the truck crane; *Operating Instructions GMK 6300 – off-road gear*.
- Switch on transmission mode 1; *Operating Instructions GMK 6300 – Transmission modes of the automatic transmission*.
- Drive as slowly as possible.
- The turning radius should be as large as possible when driving around corners.
- Steer the truck crane only when it is rolling and avoid sudden steering movements.

When the surface is uneven, the truck crane must be raised with the outrigger cylinders, horizontally aligned and then re-lowered; *Retracting the outriggers, p. 5 - 40 and switch over the suspension locking system, p. 5 - 40*.

Extending the outriggers

The truck crane must be supported on outriggers before beginning work with the crane; *Operating Instructions GMK 6300 – outrigger*.



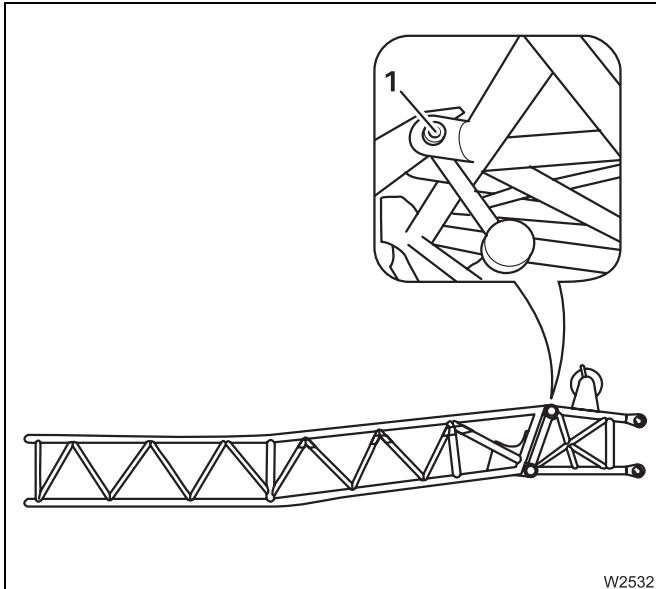
Risk of overturning.

The truck crane must be raised until none of the wheels touch the ground.

5.10 Maintenance work

5.10.1 Lubricating the fall-back guard

M 1



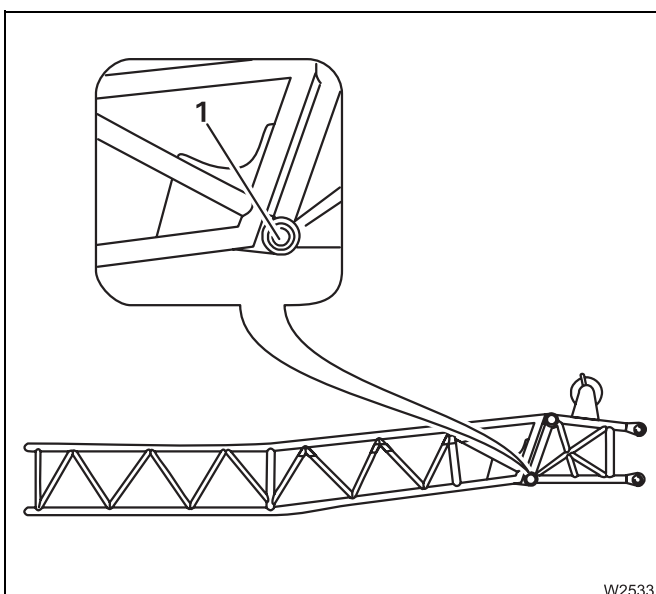
A lubricating nipple at the pivot point of the fall-back guard on the foot section is to be lubricated.

- Clean the lubricating nipple (1) and lubricate it with a grease gun.
- Use lubricating grease specified in the *Maintenance plan*, p. 5 - 47.
- Move the fall-back guard so that the grease is evenly distributed.

5.10.2 Lubricating connecting pins

M 1

One lubricating nipple each on the connecting pins on the left and right sides of the foot section is to be lubricated.



- Clean the lubricating nipple (1) and lubricate it with a grease gun.
- Use lubricating grease specified in the *Maintenance plan*, p. 5 - 47.


6.2

Components and identification

Components

When delivered, the luffing jib has the following components (see diagram on next page):

- A foot section
- A luffing control arm
- Three intermediate sections with rear pendant links
- A guy piece
- Two intermediate sections without rear pendant links (also no holders for rear pendant links here) and
- A head

These components can be assembled in six different length combinations. Which parts must then be installed at which position;  *Possible combinations*, p. 6 - 11.

Identification

The luffing jib is designed for the truck crane with which it was delivered. The parts of the luffing jib belonging to the truck crane have the same serial number as the truck crane.

All components are identified by a serial number.



Operate the truck crane only with those parts of the luffing jib which have the same serial number as the crane.
The RCL is set only for this luffing jib.
This prevents malfunctions and damage.



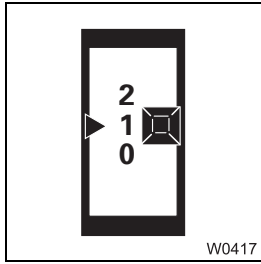
For technical reasons the truck crane may only be set with one luffing jib.

If you wish to use the luffing jib on several GROVE truck cranes, the parts of the luffing jib must be adjusted for these cranes and labelled with all of the respective serial numbers.

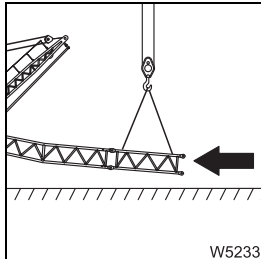


The adjustment of the swing-away luffing jib may only be carried out by **CraneCARE**.

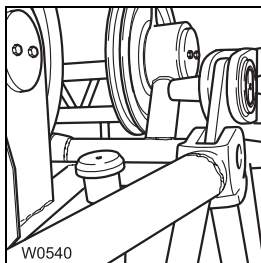




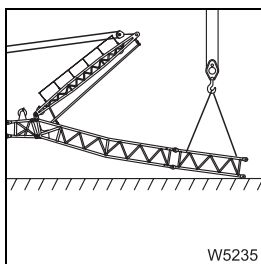
12. Move operating mode selector switch to position 1: *Rigging*; p. 6 - 4.



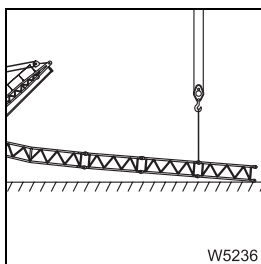
13. Mount the first intermediate section required on the foot section using the auxiliary crane; *Installing/removing boom sections and rear pendant links*, p. 6 - 40.



14. Hoist installed boom sections using an auxiliary crane until the locking points for the transport pins are no longer under stress; remove the transport pins and secure them in their holders; *Removing/inserting the transport pins*, p. 6 - 46.



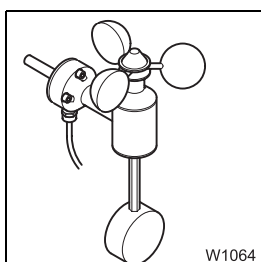
15. Place the luffing jib on the ground in front using an auxiliary crane.



16. Mount all other boom sections required one after the other as follows:

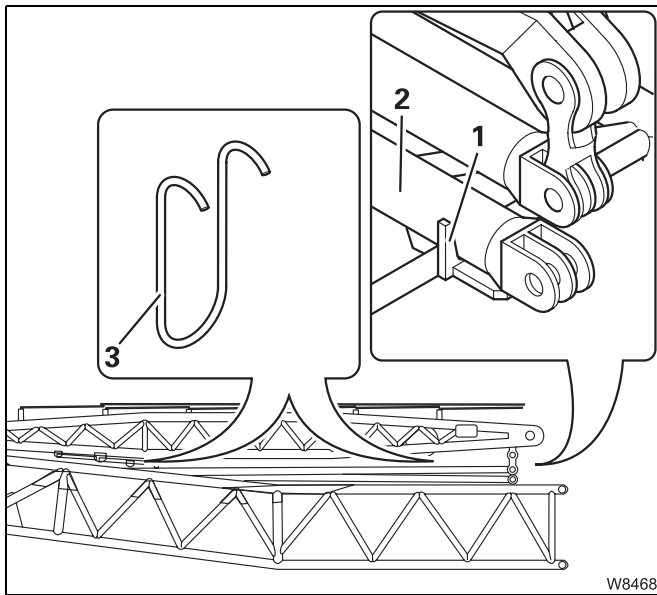
- Sling the next boom section to the slinging points
- Establish connections in the top chord
- Lift the previously mounted boom section using an auxiliary crane and create a connection in the bottom chord
- Lower the luffing jib using an auxiliary crane until the part furthest to the front is on the ground

Installing/removing boom sections and rear pendant links, p. 6 - 40.



17. Reposition the anemometer from the main boom head to the head section of the luffing jib; p. 6 - 48.





Removing transport brackets

- Lift the lower rear pendant link (2) with an auxiliary crane.
- Remove both transport brackets (3).
- Lower the rear pendant link (2) to the rest (1) in the foot section.



Risk of injury due to falling parts.

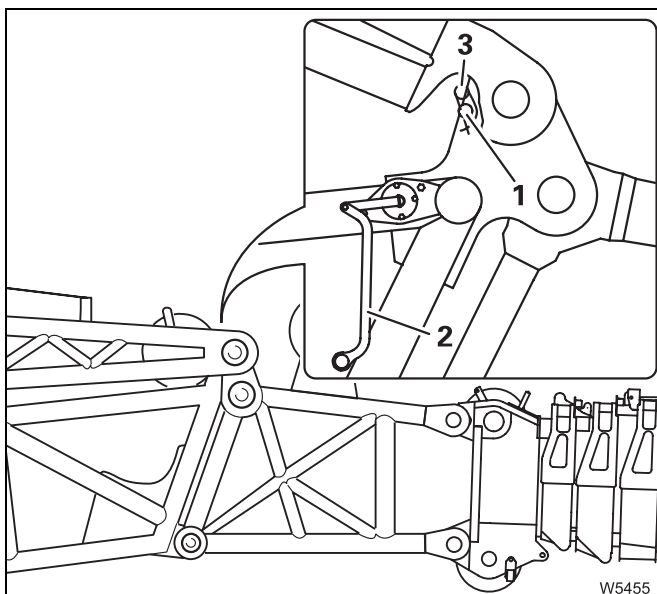
Do not leave the transport brackets hanging in the luffing jib. They may fall down during operation, causing damage or injury.

After installing the luffing control arm, you must rig the fall-back guard strut;
▮▮▮▮ *Rigging/unrigging fall-back guard strut, p. 6 - 29.*

Removal

The fall-back guard strut must be unrigged before its removal;

▮▮▮▮ *Rigging/unrigging fall-back guard strut, p. 6 - 29.*



Disconnect the connection to the potentiometer

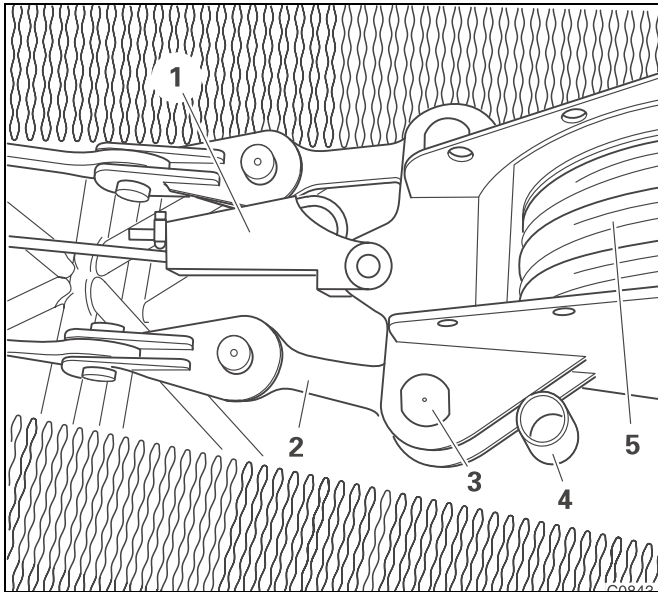
- Remove the retaining pin (3) from the peg (1).
- Fold the bracket (2) downwards.
- Attach the retaining pin on the peg.



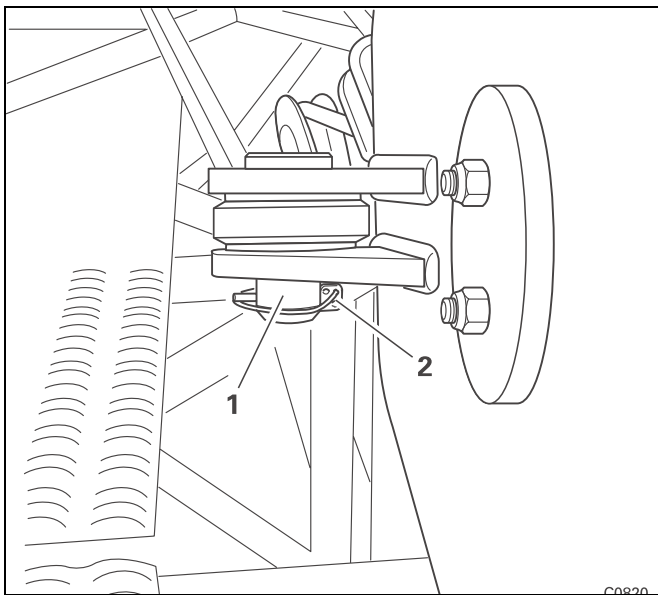


Risk of accidents when raising the upper hook block.

If you still need to move the hoists back to lock the upper hook block, make sure that the luffing control arm does not rise when someone is standing on it.



- Remove the pins (3) from the holders (4).
- Lock the upper hook block (5) and the crosshead (2) with the two pins (3).
If necessary, continue to readjust with the hoists.



- Secure the bolts (1) on both sides with a spring cotter (2).

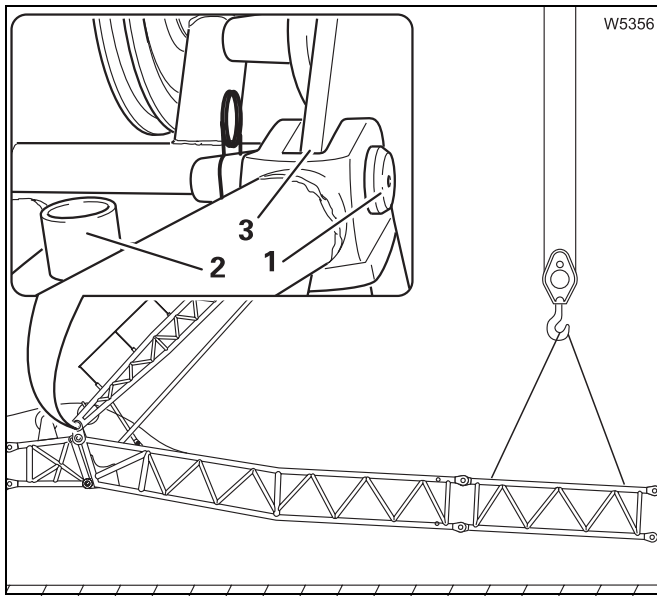
Inserting transport pins

The transport pins must be re-inserted in the foot section for transportation.



Risk of crushing when raising the luffing part.


Nobody should be standing near the folding parts (e.g., on a ladder) when you lift the luffing part of the foot section to insert the transport pins. This prevents anyone getting crushed by the parts which are folding.



- Lift the luffing part of the foot section using the auxiliary crane until the connecting points (3) align.
- Remove the retaining pin and pull the transport pin (1) out of the holder (2).
- Insert the transport pin into the connecting points (3) and secure it with the retaining pin.
- Insert the transport pin on the opposite side in the same way.

6.6.15

Telescoping with the luffing jib

Telescoping is released only when there is no load on the luffing jib and the main boom is raised to 82°. Exception: Telescoping with a rigged 21 m luffing jib  p. 6 - 60.


Before telescoping you must switch to telescoping operation:

- Switch the *operating mode selector switch* to position **1** for rigging.



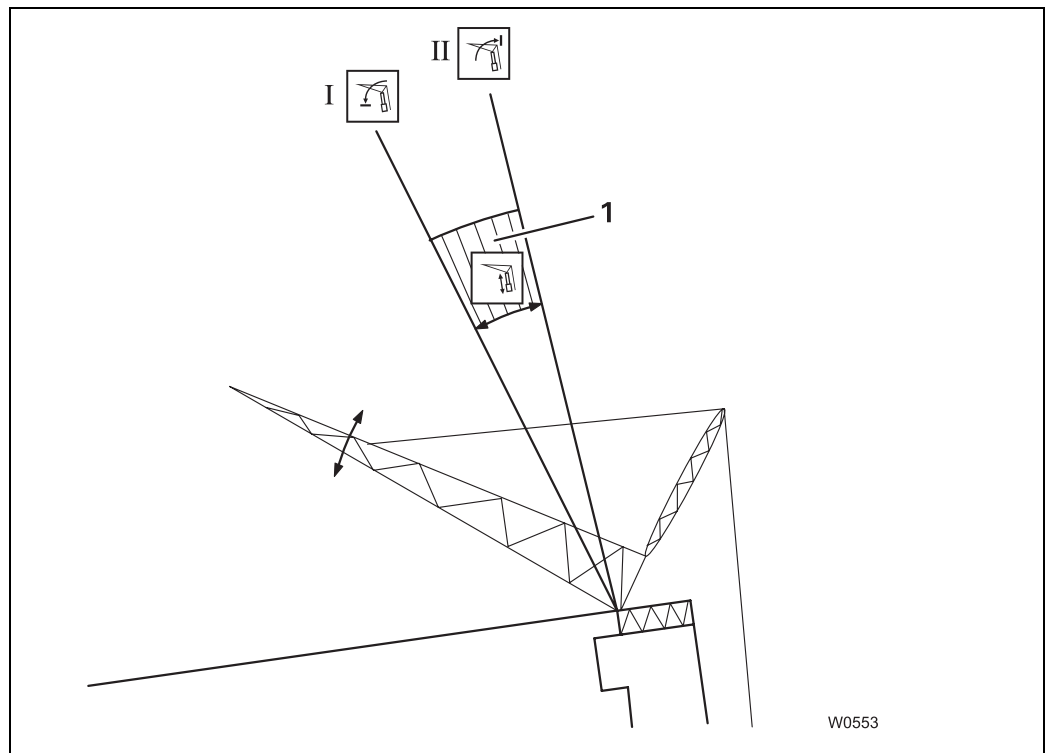
The *Rigging range* indicator lamp lights up.



Select the function for unlocking the telescopic section. To do this, press the *Select locking/unlocking* rocker switch up or move the rocker switch into the central position and enter the desired telescoping status in the *Teleautomation* submenu;  *Operating Instructions GMK 6300 – Telescoping with fully automatic controls*.



The *Telescoping range* indicator lamp lights up and the *Rigging range* indicator lamp goes out. Telescoping operation is switched on.



Before you can telescope you must derrick the luffing jib into the telescoping range (1).



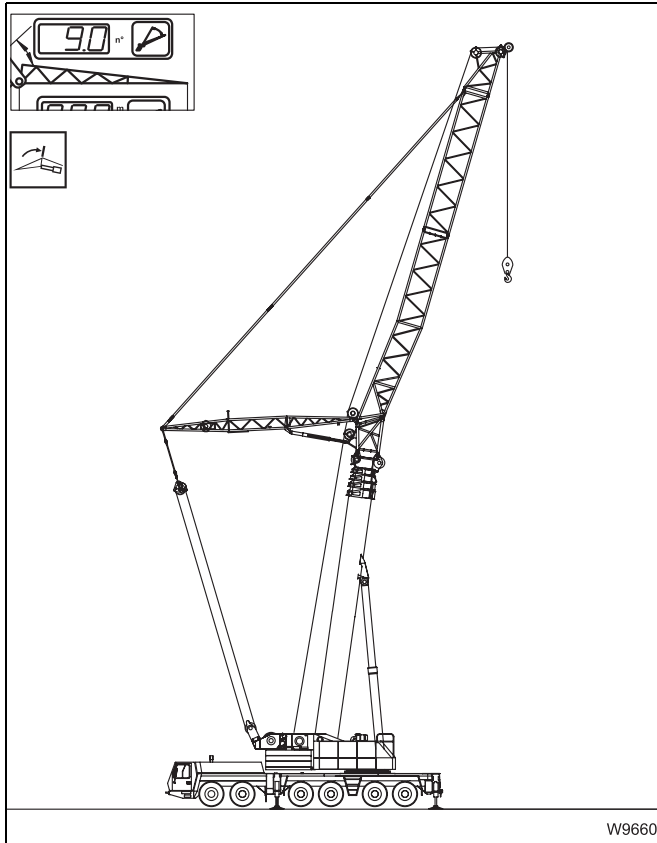
You are in the telescoping range (1) when only the *Telescoping range* indicator lamp is lit up.




Telescoping to fixed length



Leave the main boom at 82° in order to telescope it to the fixed length required for the job. Telescoping is not released at other main boom angles.

Even if the job is planned with a main boom angle of 70°, you must first raise the main boom to 82° for telescoping.



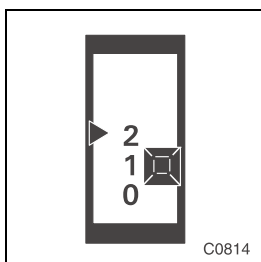
- Raise the main boom until the *Lattice inclination display* shows approx. 9°.
- Unlock the telescopic sections.

The luffing jib is now in the *Telescoping range* and the *Telescoping range* indicator lamp () lights up.

- Extend the main boom to the required fixed length. At the same time, carry out the *Lower auxiliary* hoist movement so that you do not enter the *Too steep* shutdown range;  p. 6 - 57.
- Lock the telescopic sections; the *Telescoping range* indicator lamp () will go out.

Entering working position

Before operation with the luffing jib, you must switch over the *operating mode selector switch*.



- Switch the *operating mode selector switch* to position **2** for *Operation*.

If the luffing jib is to be operated with a main boom angle of 70°:

- On the RCL, set the corresponding RCL code specified in the *Lifting capacity table*.
- Lower the main boom to 70°.

6.7

Operating with the luffing jib

Operation with the luffing jib will only be released by the crane control and RCL if:

- The main boom has been raised to 70° or 82° **and**
- The *operating mode selector switch* is in position **2** for operation **and**
- A telescoping permitted according to the *Lifting capacity table* is set and the telescopic sections are locked.



Risk of overturning due to excessively high wind speeds.

If the maximum permissible wind speed according to the *Lifting capacity table* is reached, you must put down the load.

Observe the instructions in the *Effect of wind when operating the luffing jib* section (further on in this chapter) and, if necessary, set down the luffing jib.



Risk of the main boom buckling.

Accelerate and brake the crane movements in such a way that the load does not sway.



Risk of overturning due to overloading.

During operation with the luffing jib, the telescopic swing-away lattice extension may not be folded to the side of the main boom. The weight is not registered by the RCL, which means the crane may overturn.



Risk of accidents from unchecked hoisted hook block.

Move at a very low hoisting speed if you have only a light hook block or a small load hanging on a long luffing jib.

You thus prevent the hook block being raised unchecked and the lower head sheave or hoist rope becoming damaged because of kinetic energy in the backward main hoist rope while braking the main hoist.



Risk of rope slack if single-line reeving is used.

If you work with single-line reeving for system lengths^{*)} more than 80 m (262 ft), you must always reeve the 35 t hook block or heavier hook blocks. When the lighter 12 t hook tackle is used with these system lengths, the weight of the rear hoist rope will not be compensated and the rope will go slack.

^{*)} System length = main boom length + length of lattice extension



21 m luffing jib

The following table is only valid for a 21 m luffing jib. There are extra tables for the other luffing jib lengths in this section.

Counter-weight in t (lbs)	Telescoping Tele. I/II/III/IV	Main boom angle in °	Luffing jib angle in °	Main boom position ¹⁾	Axle load ²⁾ in t		Axle load ²⁾ x 1000 lbs	
					front	rear	front	rear
36 (79400)	1.0 / 0 / 0 / 0	45	45	front	19.0	21.0	41.9	46.3
	0 / 0 / 0 / 0	82	10	rear	13.5	23.5	29.8	51.8
50 (110200)	1.0 / 0 / 0 / 0	40	40	front	16.5	25.5	36.4	56.2
	0 / 0 / 0 / 0	82	10	rear	17.0	25.5	37.5	56.2
80 (176400)	1.0 / 1.0 / 1.0 / 0	40	40	front	27.0	28.0	59.5	61.7
	–	–	–	rear	Not permissible			
100 (220500)	Not permissible							

- 1) Boom position to the rear = 0° position, boom over rear edge of truck crane
 Boom position to the front = 180° position, boom over driver's cab
- 2) Axle load front: On the first and second axle line
 Axle load rear: On the third, fourth, fifth and sixth axle lines



The axle loads specified refer to a driving mode with the basic unit including the **80 t** hook block.



6.10 Lubrication chart



The lubricants listed in the following table are to be used in the maintenance of the luffing jib. If the table of lubricants in the *Maintenance manual* of the GMK 6300 contains other lubricants under the same designation, use only those lubricants in this table for the luffing jib.

Designation	Lubricating point	Type of lubrication	Designation according to DIN 51502	Specification Classification	Lubricant type Viscosity range
G 2	Hydraulic system	Oil filling	H-LP	DIN 51524 T.2	ISO - VG 32
K	Roller bearing	For repairs, use with grease	KP - L2K	DIN 51825	

7

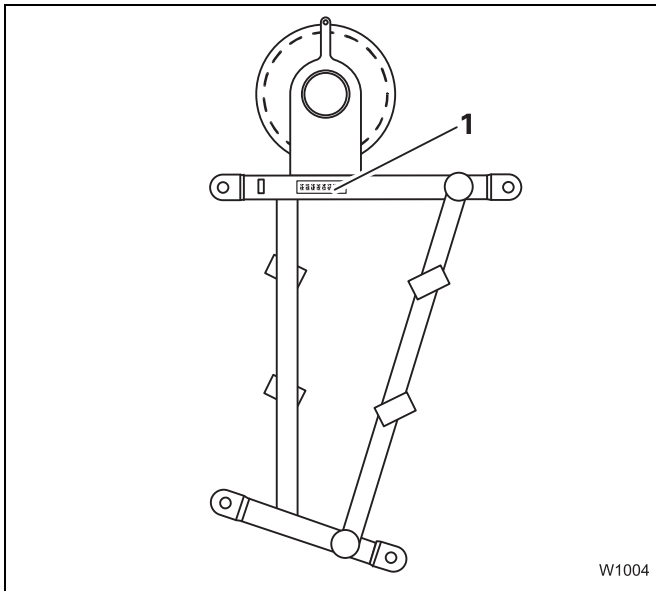
Heavy load lattice extension

7.1

Components and identification

The heavy load lattice extension may only be operated together with a GROVE truck crane GMK 6300 whose serial number is identical with the serial numbers that are marked on all parts from which the heavy load lattice extension has been assembled.


The heavy load lattice extension is assembled from the following components:



- From the 1 m part (1)
- The boom extension angle piece
- The head of the boom extension or of the luffing jib.

The serial number (1) of the 1 m part is on the right side at the rear of the grille frame.

You can find the position of the serial numbers on the other parts in the *operating instructions* for the GMK 6300.

Two different combination lengths of 3.5 m (11.5 ft) and 7 m (23.0 ft) can be assembled from these components. The head and angle piece are identical with the parts of the boom extension or, as the case may be, the luffing jib;  *Possible combinations*, p. 7 - 3.

7.5

Description of the rigging work

7.5.1

Truck crane rigging mode during installation of the heavy load lattice extension



Risk of overturning.

The heavy load lattice extension may only be mounted with the span and counterweight indicated in the *Lifting capacity table*.

These values apply both to rigging and operating the heavy load lattice extension.

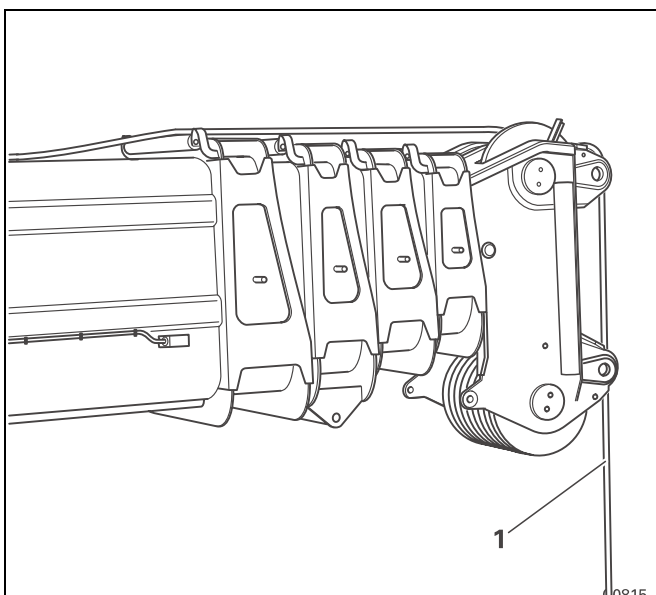


Risk of accidents.

Use only authorized lifting gear with sufficient lifting capacity. Use the supplied two-piece extendable ladder when installing the heavy load lattice extension.

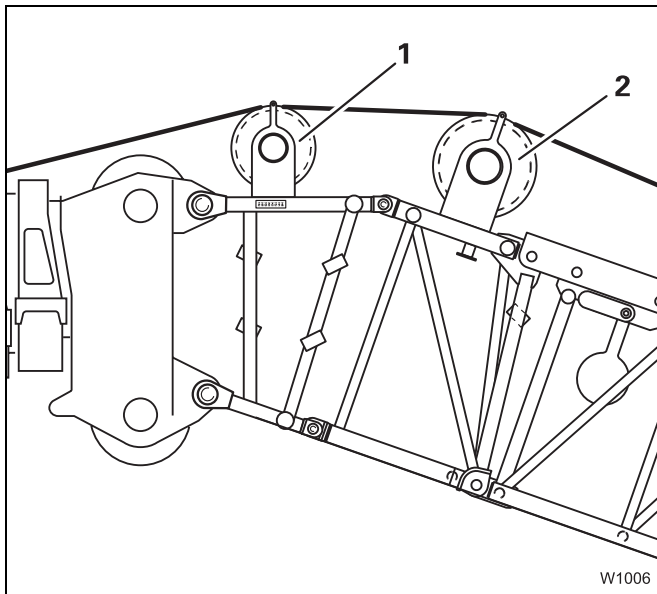
The following preparatory work must be done when installing or removing the heavy load lattice extension on the truck crane in order to bring the truck crane into the prescribed rigging mode.

- Support the truck crane; *Operating Instructions GMK 6300 – Outrigger*. The prescribed outrigger span can be found in the Lifting capacity tables.
- Install the counterweight necessary for operation with the heavy load lattice extension to be rigged; *Operating Instructions GMK 6300 – Counterweight*. Information concerning the required counterweight can be found in the Lifting capacity tables.



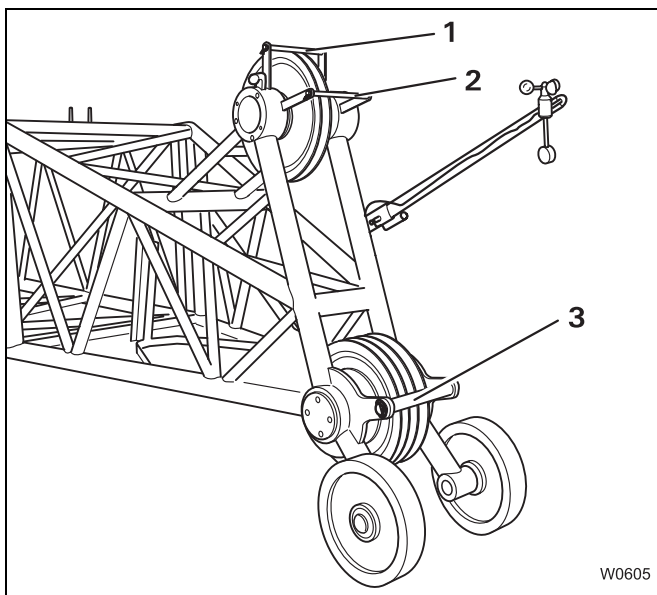
- Fully retract all telescopic sections and lower the main boom until it is horizontal; *Operating Instructions GMK 6300 – Telescoping mechanism*.
- Unreeve the hook block; *Operating Instructions GMK 6300 – Rigging work on the main boom*.
Lay the hoist rope (1) on the head sheave of the main boom.

7.5.7 Reeving the hoist rope



The following section concerns the 7 m heavy load lattice extension. If the 3.5 m heavy load lattice extension is rigged, position (2) is not applicable.

- Release the retaining pin and remove the rope holding rods above the sheaves (1) and (2).
- Move the hoist rope forward. When doing this, lay the hoist rope over both sheaves (1) and (2).
- Insert the rope holding rods in the holders over the sheaves (1) and (2) and secure them with the retaining pins.

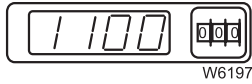
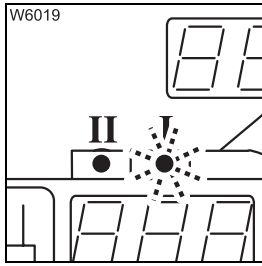


- Release the retaining pin and pull out the rope holding rods (1) and (2) at the head section.
- Open the spring cotter and pull out the rope holding rod (3).





- Switch on the main hoist by pressing the *Main hoist shutoff* rocker switch up.
- On the indicator lamps for *Hoists*, lamp **II** is now lit for the auxiliary hoist and lamp **I** flashes for the main hoist.



- Set the RCL code for crane operation with the heavy load lattice extension, valid for the current rigging mode of the truck crane.

Now the RCL is set for two-hook operation, taking into account the reeving for the auxiliary hoist and the lifting capacity tables for the heavy load lattice extension.



In two-hook operation, the load measurement is carried out by means of the pressure in the derricking cylinder. The loads detailed in the *Lifting capacity table* then decrease by the weight of both reeved hook blocks.

Turning a load

When turning loads, proceed only in the manner described as follows.



Keep the acceleration forces as low as possible during two-hook operation. For this reason, move the load at the lowest possible speed.



As soon as the hoist rope on the main boom is pulled taut, the status display *Actual load* will exhibit slight deviations. However, these deviations are still on the safe side with regard to RCL shutdown.



As long as the load is hanging on two hooks, you may not switch the RCL code to *Operation with the main boom*. It must be set to *Operation with the heavy load lattice extension* during the entire lifting procedure.



8 Index

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